Report on the FCC and IC Testing of the Agrident GmbH

Model: ASR650 (RFID Long Range Reader) APA203, APA204, APA206, APA160, LGA149, ARA120 (Antennas for ASR650)

In accordance with ISED RSS-210 and ISED RSS-Gen

Product Service

Add value.
Inspire trust.

Prepared for: Agrident GmbH
Dahlkampsanger 2
30890 Barsinghausen
Germany

Contains:

FCC ID: QG2ASR650
IC: 6252A-ASR650

COMMERCIAL-IN-CONFIDENCE

Date: 2024-11-04
Document Number: TR-713319609-04 | Revision 0

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Project Management	Alexander Deese	2024-11-04	SIGN-ID 981455
Authorised Signatory	Alex Fink	2024-11-04	SIGN-ID 981721

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

Engineering Statement:
The measurements shown in this report were made in accordance with the procedures described on test pages.
All reporded testing was carried out on a sample equipment to demonstrate limited compliance with ISED RSS-210 and RSS-GEN.
The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Alexander Deese	2024-11-04	SIGN-ID 981455

Laboratory Accreditation
DAkkS Reg. No. D-PL-11321-11-03
DAkkS Reg. No. D-PL-11321-11-04

Laboratory recognition
Registration No. BNetzA-CAB-16/21-15

Industry Canada test site registration
3050A-2

Executive Statement:
A sample of this product was tested and found to be compliant with ISED RSS210 Issue 11 and ISED RSSGen Issue 5

Trade Register Munich
HRB 85742
VAT ID No. DE129484267
Information pursuant to Section 2(1)
DL-InfoV (Germany) at
www.tuvsud.com/imprint

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94315 Straubing
Germany

Product Service

Content

Product Service

1 Report Summary

1.1 Modification Report

Alternations and additions of this report will be issued to the holders of each copy in the form of a complete document.

Issue	*Description of changes*	*Date of Issue*
1	First Issue	2024-11-04

Table 1: Report of Modifications

1.2 Introduction

Applicant	Agrident GmbH
Manufacturer	Agrident GmbH
Model Number(s)	ASR650 (RFID Long Range Reader) APA203, APA204, APA206, APA160, LGA149, ARA120 (Antennas for ASR650)
Serial Number(s)	ASR650 SN: 2128005957, 2128005958 APA203 SN: 5615006429, 5615006430 APA204 SN: 5616000532, 5616000533 APA206 SN: 5614004275, 5614004276 APA160 SN: 5618000851, 5618000852 ARA120 SN: 5707000260, 5707000261 LGA149 SN: 5629001015
Hardware Version(s)	---
Software Version(s)	---
Number of Samples Tested	1
Test Specification(s) /	ISED RSS-210, Issue 11: 2024
Issue / Date	ISED RSS-Gen, Issue 5, Amd. 1 : 2019, Amd. 2 : 2021
Test Plan/Issue/Date	---
Order Number	5913121-2
Date	2024-01-12
Date of Receipt of EUT	2024-02-15
Start of Test	2024-03-07
Finish of Test	2024-04-25
Name of Engineer(s)	Alexander Deese
Related Document(s)	ANSI C63.10:2013

Product Service

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with ISED RSS-210 and RSS-Gen is shown below.

Section	*Specification Clause*	*Test Description*	*Result*
2.1	7.3	Radiated Emissions	Pass
2.2	7.3	AC Power Line Conducted Emissions	Pass

Table 2: Results according to ISED RSS-210

Section	*Specification Clause*	*Test Description*	*Result*
	6.7	Bandwidth of Signal	N/T
	8.11	Temperature Stability	N/T
2.2	8.8	AC Power Line Conducted Emissions	Pass
2.1	8.9, 8.10	Radiated Emissions	Pass

Table 3: Results according to ISED RSS-Gen

Product Service

1.4 Product Information

1.4.1 Technical Description

RFID Long Range Reader used for electronic animal identification.

Supply Voltage:	12 V
Supply Frequency:	DC
Highest clock frequency:	62.2688 MHz

If the EUT contains intentional radiating modules:

(Highest) Clock Frequencies of modules:	134.2 kHz
FCC IDs of modules:	QG2ASR650
IC IDs of modules:	6252A-ASR650

1.5 Test Configuration

The EUT was 12 V DC power supplied. RFID worked.

1.6 Modes of Operation

Test Case 1:
ASR650 (RFID Long Range Reader) with APA203 (Antenna for ASR650)

Test Case 2:
ASR650 (RFID Long Range Reader) with APA204 (Antenna for ASR650)

Test Case 3:
ASR650 (RFID Long Range Reader) with APA206 (Antenna for ASR650)

Test Case 4:
ASR650 (RFID Long Range Reader) with APA160 (Antenna for ASR650)

Test Case 5:
ASR650 (RFID Long Range Reader) with ARA120 (Antenna for ASR650)

Test Case 6:
ASR650 (RFID Long Range Reader) with LGA149 (Antenna for ASR650)

Product Service

1.7 Deviations from Standard

1.8 EUT Modifications Record

The table below details modifications made to the EUT during the test program.
The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
0	As supplied by the customer	Not Applicable	Not Applicable

Table 4

1.9 Test Location

TÜV SÜD Product Service conducted the following tests at our Straubing test laboratory:

Test Name	Name of Engineer(s)
Configuration in accordance with sections 1.5 and 1.6	
Conducted Disturbance at Mains Terminal	Alexander Deese
Radiated Disturbance	Alexander Deese

Office Address:
Äußere Frühlingstraße 45
94315 Straubing
Germany

Product Service

2 Test Details

2.1 Radiated Emissions

2.1.1 Specification Reference

ISED RSS-210, Clause 8.3
ISED RSS-Gen, Clauses 8.9 and 8.10

2.1.2 Equipment under Test and Modification State

ASR650; S/N 2128005957; Modification state 0
APA203; S/N 2128005957; Modification state 0
APA204; S/N 2128005957; Modification state 0
APA206; S/N 2128005957; Modification state 0
APA160; S/N 2128005957; Modification state 0
ARA120; S/N 2128005957; Modification state 0
LGA149; S/N 2128005957; Modification state 0

2.1.3 Date of Test

2024-03-07 to 2024-06-12

2.1.4 Environmental Conditions

Ambient Temperature	21 °C
Relative Humidity	34 %

Product Service

2.1.5 Specification Limits

General radiated emission limits:					
Frequency Range (MHz)	*Test distance (m)*	*Field strength*		*Field strength*	
		(µA/m)	*(dBµA/m)*	*(µV/m)*	*(dBµV/m)*
0.009 – 0.49	300	6.37 / *f*	20*lg(6.37 / *f*)	2400 / *f*	20*lg(2400 / *f*)
0.49 – 1.705	30	63.7 / *f*	20*lg(63.7 / *f*)	24000 / *f*	20*lg(24000 / *f*)
1.705 - 30	30	0.08	20*lg(0.08 / *f*)	30	20*lg(30 / *f*)
30 – 88	3	---	---	100	40
88 – 216	3	--	---	150	43.5
126 – 960	3	--	---	200	46
above 960	3	--	---	500	54
Note 1: *f* in kHz					

Table 5 General radiated emission limits

At frequencies at or above 30 MHz, measurements may be performed at distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 m, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements.

At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempts should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

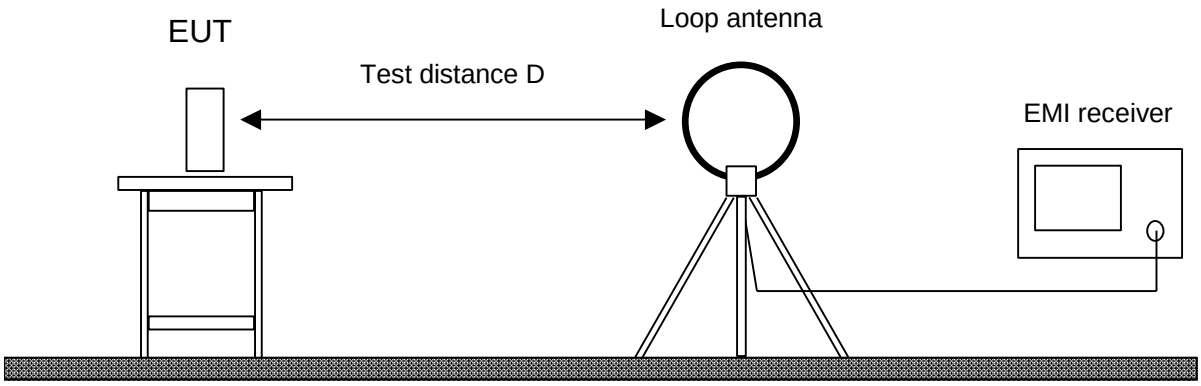
Product Service

2.1.6 Test Method

The test was performed according to ANSI C63.10, sections 11.11 and 11.12

Prescans are performed in six positions of the EUT to get the full spectrum of emission caused by the EUT with the measuring antenna raised and lowered from 1 m to 4 m with vertical and horizontal polarisation to find the combination of table position, antenna height and antenna polarisation for the maximum emission levels.
Data reduction is applied to these results to select those levels having less margin than 10 dB or exceeding the limit using subranges and limited number of maximums.
Further maximisation for adjusting the maximum position is following.
Equipment and cables are placed and moved within the range of position likely to find their maximum emissions.

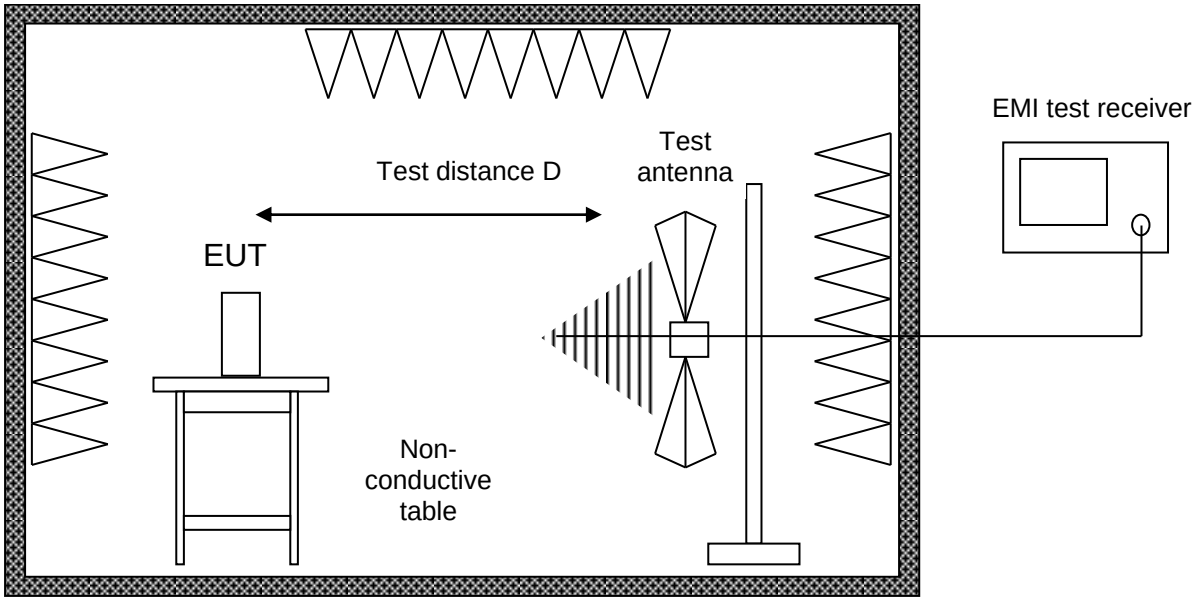
2.1.6.1 Frequency range 9 kHz – 30 MHz



The EUT was placed on a non-conductive table, 0.8 m above the ground.
Radiated emissions in the frequency 9 kHz – 30 MHz is measured within a semi-anechoic room with an active loop antenna with the measurement detector set to peak. In addition in the frequency range 9 kHz to 490 kHz also an average detector was used. The measurement bandwidth of the receiver was set to 300 Hz in the frequency range 9 kHz to 150 kHz and 10 kHz in the frequency range 150 kHz to 30 MHz. Prescans were performed in six positions of the EUT.
For final measurements the detector was set to CISPR quasi-peak and in addition to CISPR average in the frequency range 9 kHz to 490 kHz with a resolution bandwidth 200 Hz in the frequency range 9 kHz to 150 kHz and 9 kHz in the frequency range 150 kHz to 30 MHz. Final tests were performed immediately after a final frequency and zoom (for drifting disturbances) and maximum adjustment.

Product Service

2.1.6.2 Frequency range 30 MHz – 1 GHz

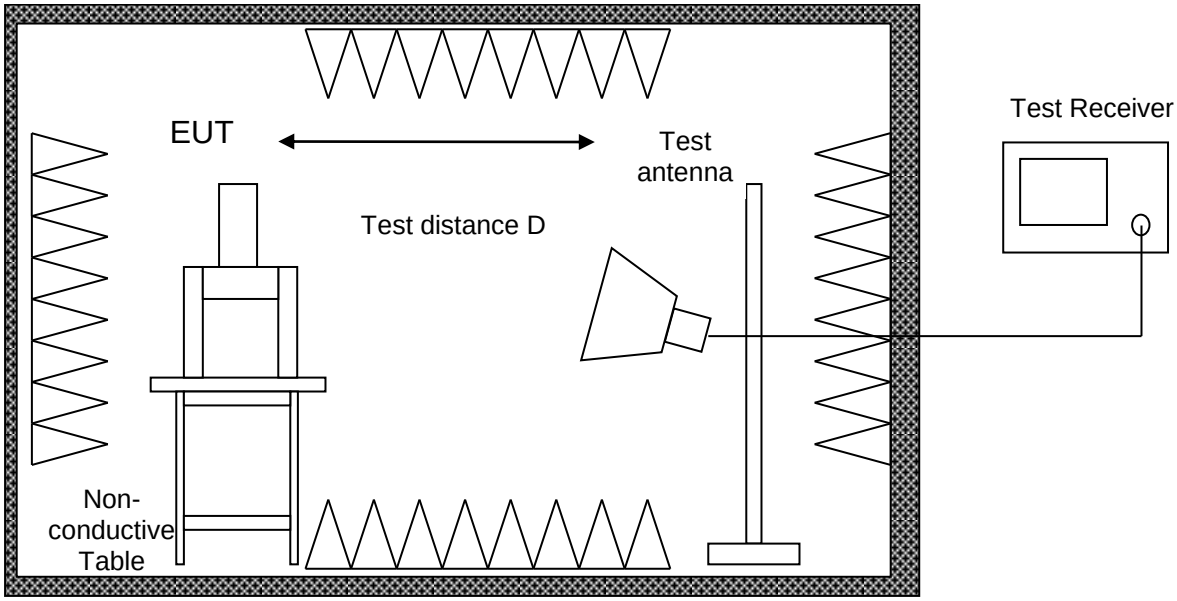


Alternate test site (semi anechoic room)

The EUT was placed on a non-conductive table, 0.8 m above the ground plane
Radiated emissions in the frequency range 30 MHz – 1 GHz is measured within a semi-anechoic room with groundplane complying with the NSA requirements of ANSI C63.4. for alternative test sites. A linear polarised logarithmic periodic antenna combined with a 4:1 broadband dipole (“Trilog broadband antenna”) is used.
For prescan tests the test receiver is set to peak-detector with a bandwidth of 120 kHz.
With the measurement bandwidth of the test receiver set to 120 kHz CISPR quasi-peak detector is selected for final measurements following immediately after a final frequency zoom (for drifting disturbances) and maximum adjustment.

Product Service

2.1.6.3 Frequency range above 1 GHz



Fully anechoic room

The EUT was placed on a non-conductive table, 1.5 m above the ground plane
Radiated emission tests above 1 GHz are performed in a fully anechoic room with the S_{VSWR} requirements of ANSI C63.4. Measurements are performed both in the horizontal and vertical planes of polarisation using a test receiver with the detector function set to peak and average and the resolution bandwidth set to 1 MHz. Testing above 1 GHz is performed with horn antennas with the EUT in boresight of the antenna.
For prescan tests the test receiver is set to peak- and average-detector with a bandwidth of 1 MHz. With the measurement bandwidth of the test receiver set to 1 MHz and peak- and CISPR average-detector is selected for final measurements following immediately after a final frequency zoom (for drifting disturbances) and maximum adjustment.

Product Service

2.1.7 Test Results

Frequency range	*Limit applied*	*Test distance*
9 kHz to 30 MHz	15.209	10 m
30 MHz to 1 GHz	15.209	3 m

Table 6

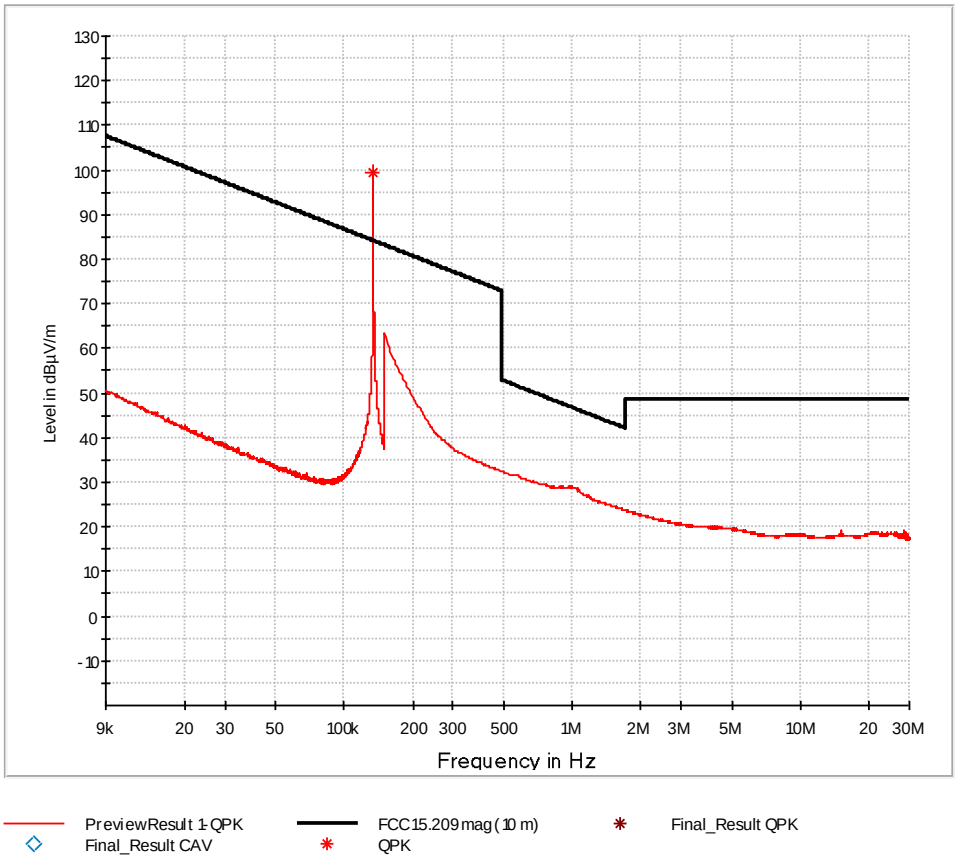
Sample calculation:

Final Value (dBµV/m) = Reading Value (dBµV) + (Cable attenuation (dB) + Antenna Transducer (dB(1/m)))

Additional correction of limit in the frequency range 9 – 490 kHz (300 m to 3 m): +80.0 dB
Additional correction of limit in the frequency range 490 kHz – 30 MHz (30 m to 3 m): +40.0 dB
Additional correction of limit in the frequency ranges above 1 GHz (3 m to 1 m): +9.54 dB

Product Service

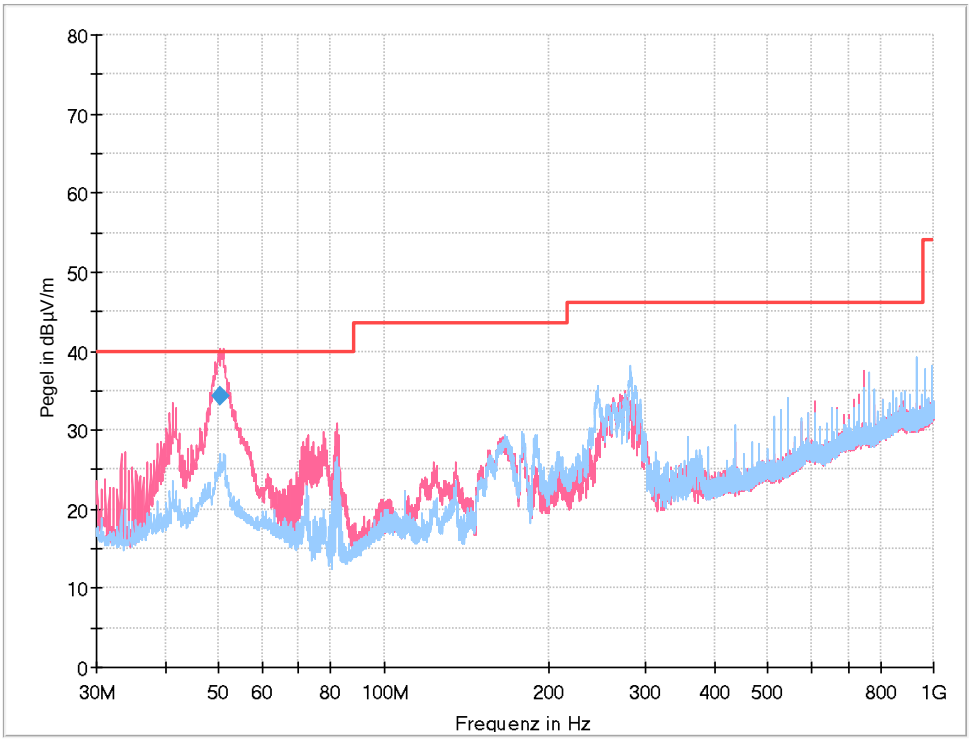
Test Case 1:



Final Results:

Frequency MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Meas. Time ms*	*Bandwidth kHz*	*Pol*	*Azimuth deg*	*Corr. dB*
0.134200	99.37*	---	---	1000.0	0.200	V	90.0	19.8

*: For field strength calculation at 300m see page 24.

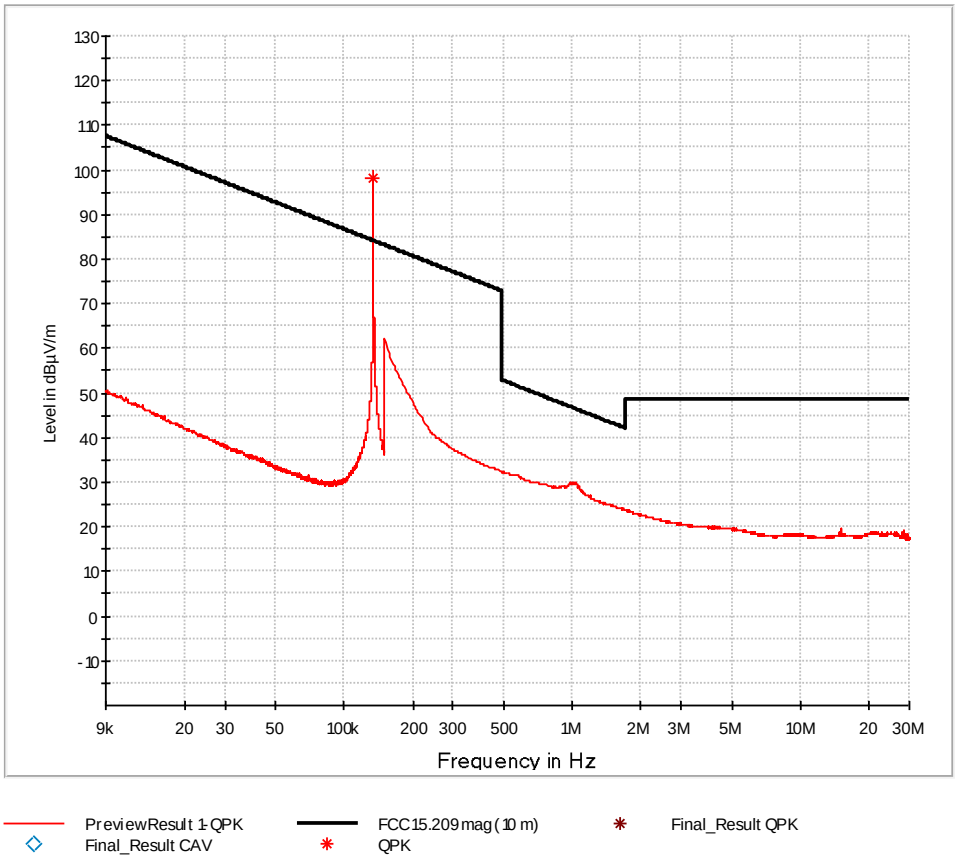


Final Results:

Frequenz MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Messzeit ms*	*Bandbreite kHz*	*Höhe cm*	*Pol*	*Azimut deg*	*Korr. dB/m*
50.460000	34.41	40.00	5.59	1000.0	120.000	120.0	V	-29.0	20.0

Product Service

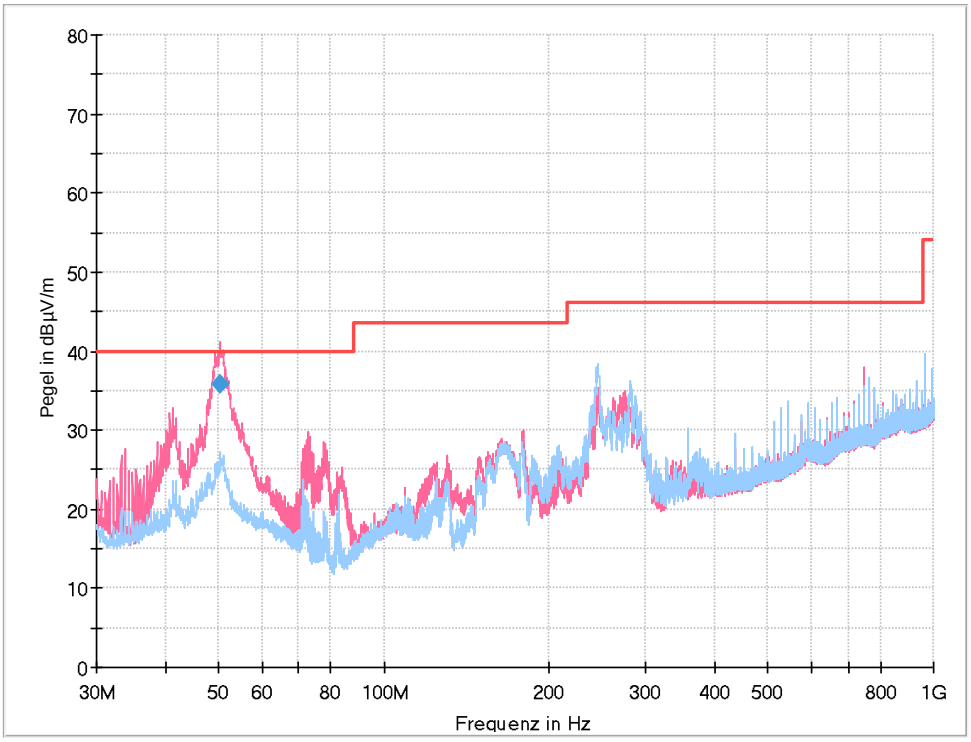
Test Case 2:



Final Results:

Frequency MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Meas. Time ms*	*Bandwidth kHz*	*Pol*	*Azimuth deg*	*Corr. dB*
0.134200	98.09*	---	---	1000.0	0.200	V	-90.0	19.8

*: For field strength calculation at 300m see page 24.

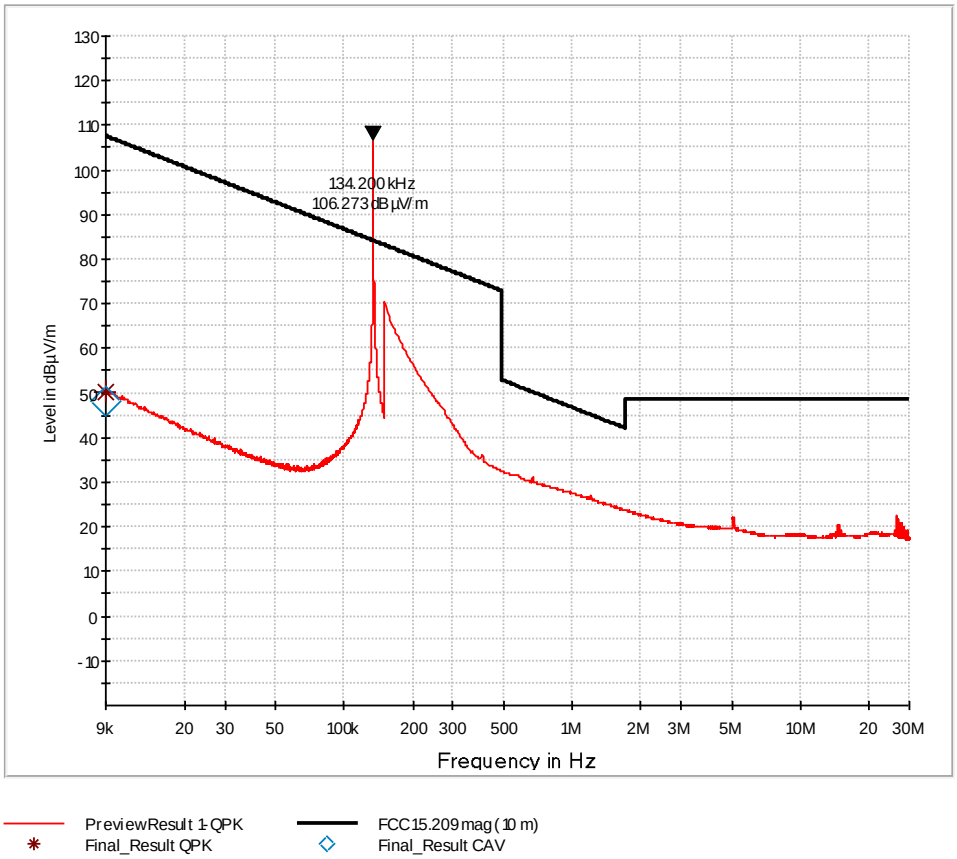


Final Results:

Frequenz MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Messzeit ms*	*Bandbreite kHz*	*Höhe cm*	*Pol*	*Azimut deg*	*Korr. dB/m*
50.460000	35.75	40.00	4.25	1000.0	120.000	120.0	V	-15.0	20.0

Product Service

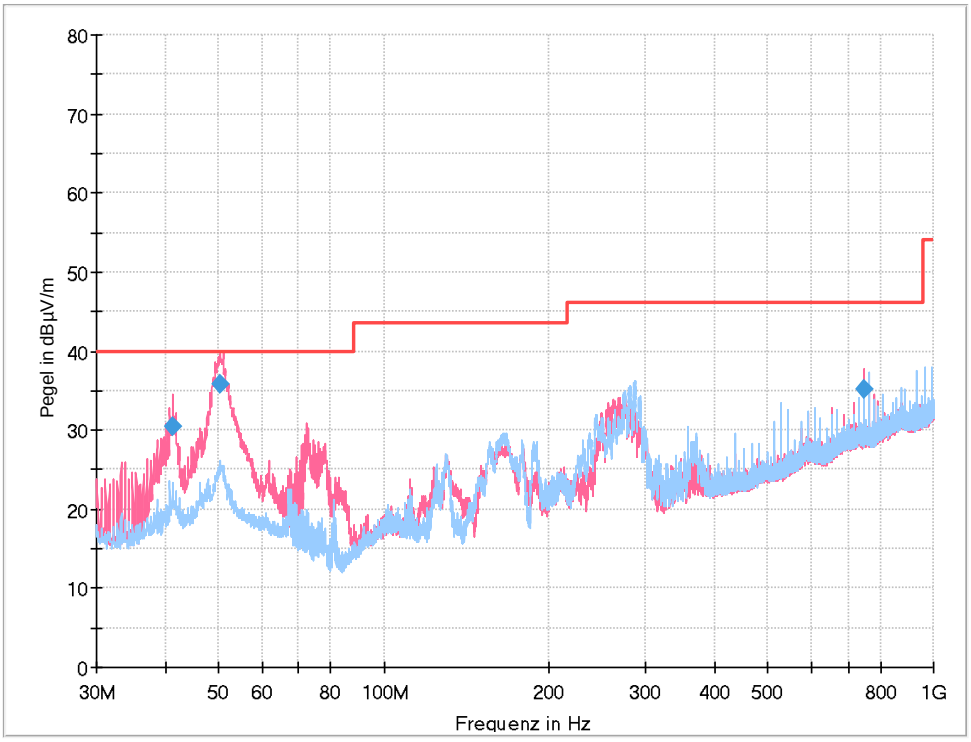
Test Case 3:



Final Results:

Frequency MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Meas. Time ms*	*Bandwidth kHz*	*Pol*	*Azimuth deg*	*Corr. dB*
0.134200	106.27*	---	---	1000.0	0.200	V	-90.0	19.8

*: For field strength calculation at 300m see page 24.

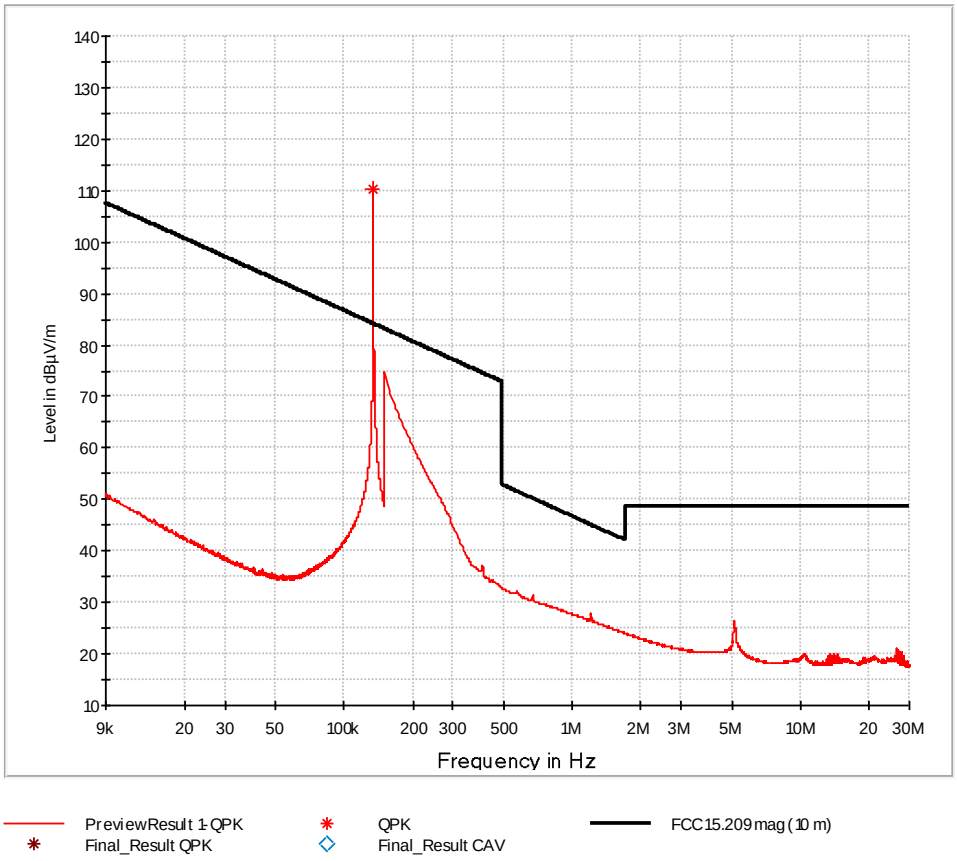


Final Results:

Frequenz MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Messzeit ms*	*Bandbreite kHz*	*Höhe cm*	*Pol*	*Azimut deg*	*Korr. dB/m*
41.340000	30.40	40.00	9.60	1000.0	120.000	105.0	V	-143.0	18.7
50.460000	35.85	40.00	4.15	1000.0	120.000	100.0	V	107.0	20.0
747.210000	35.12	46.02	10.90	1000.0	120.000	100.0	V	158.0	28.7

Product Service

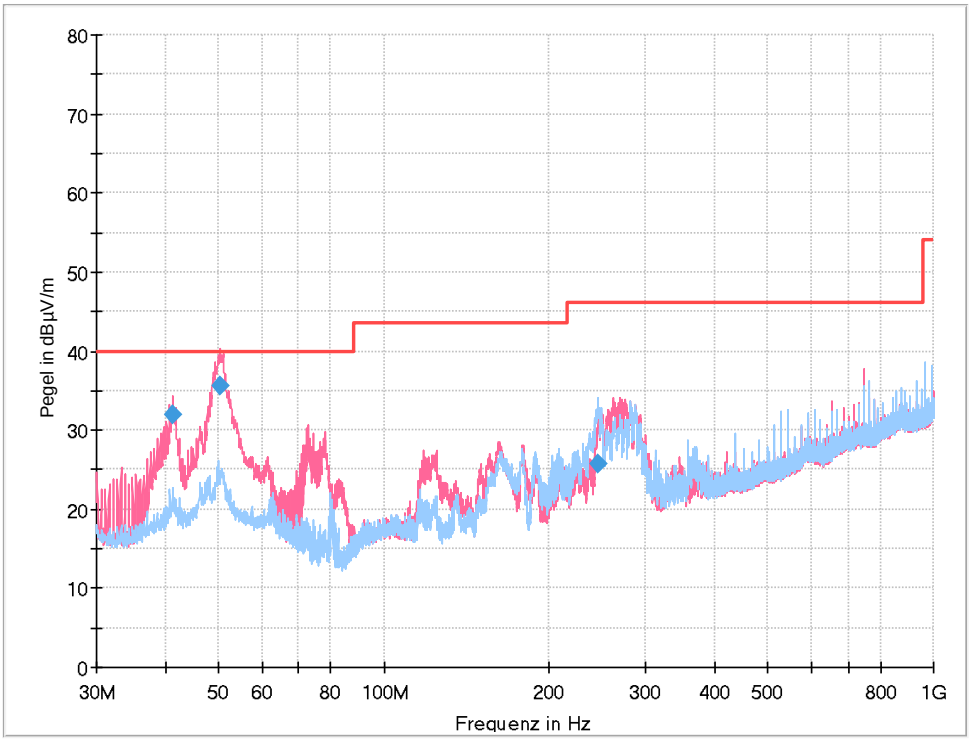
Test Case 4:



Final Results:

Frequency MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Meas. Time ms*	*Bandwidth kHz*	*Pol*	*Azimuth deg*	*Corr. dB/m*
0.134200	110.37*	---	---	1000.0	0.200	V	75.0	19.8

*: For field strength calculation at 300m see page 24.

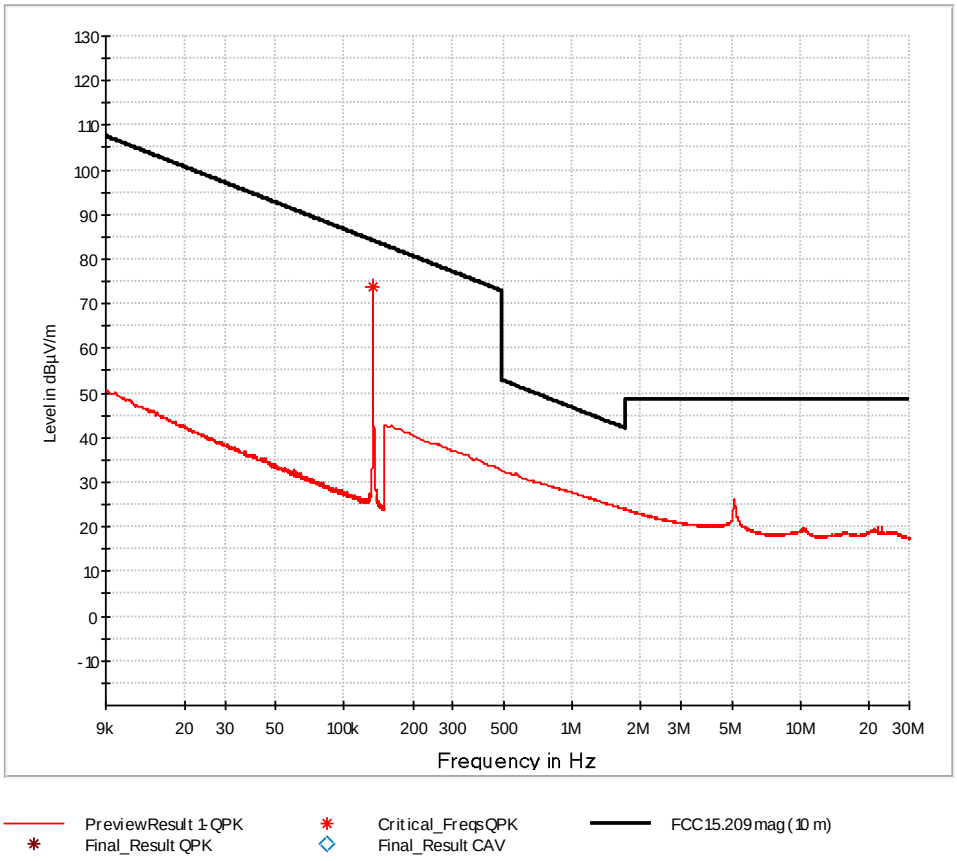


Final Results:

Frequenz MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Messzeit ms*	*Bandbreite kHz*	*Höhe cm*	*Pol*	*Azimut deg*	*Korr. dB/m*
41.340000	31.91	40.00	8.09	1000.0	120.000	101.0	V	-119.0	18.7
50.460000	35.60	40.00	4.40	1000.0	120.000	106.0	V	-20.0	20.0
244.500000	25.64	46.02	20.38	1000.0	120.000	115.0	H	-86.0	19.0

Product Service

Test Case 5:

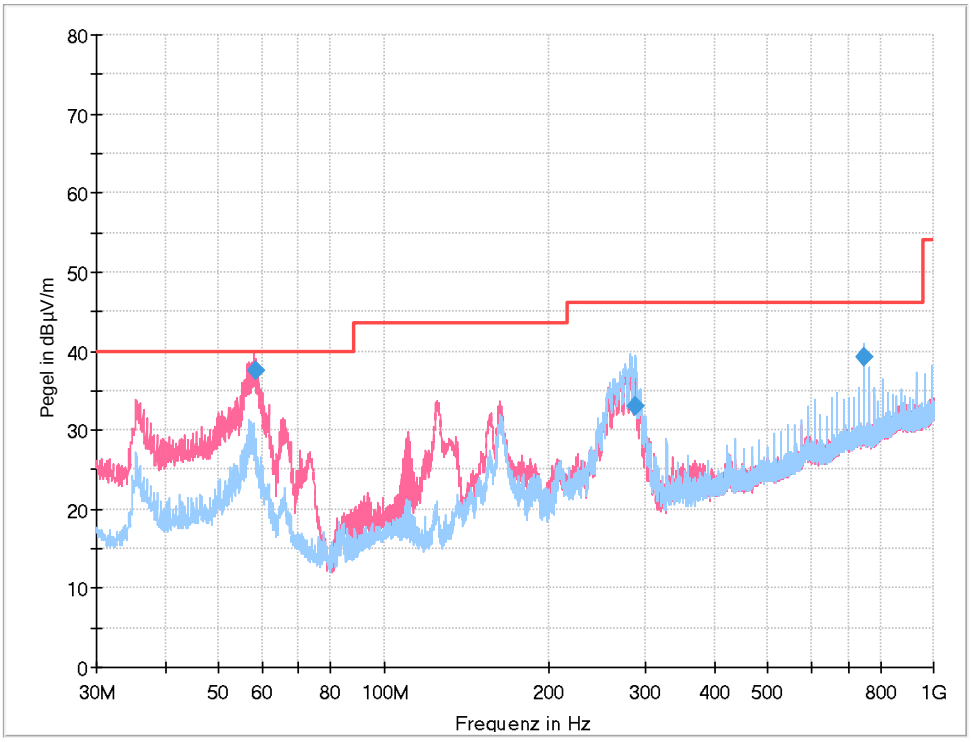


Final Results:

Frequency MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Meas. Time ms*	*Bandwidth kHz*	*Pol*	*Azimuth deg*	*Corr. dB*
0.134200	73.66*	---	---	1000.0	0.200	H	-150.0	19.8

*: For field strength calculation at 300m see page 24.

Product Service



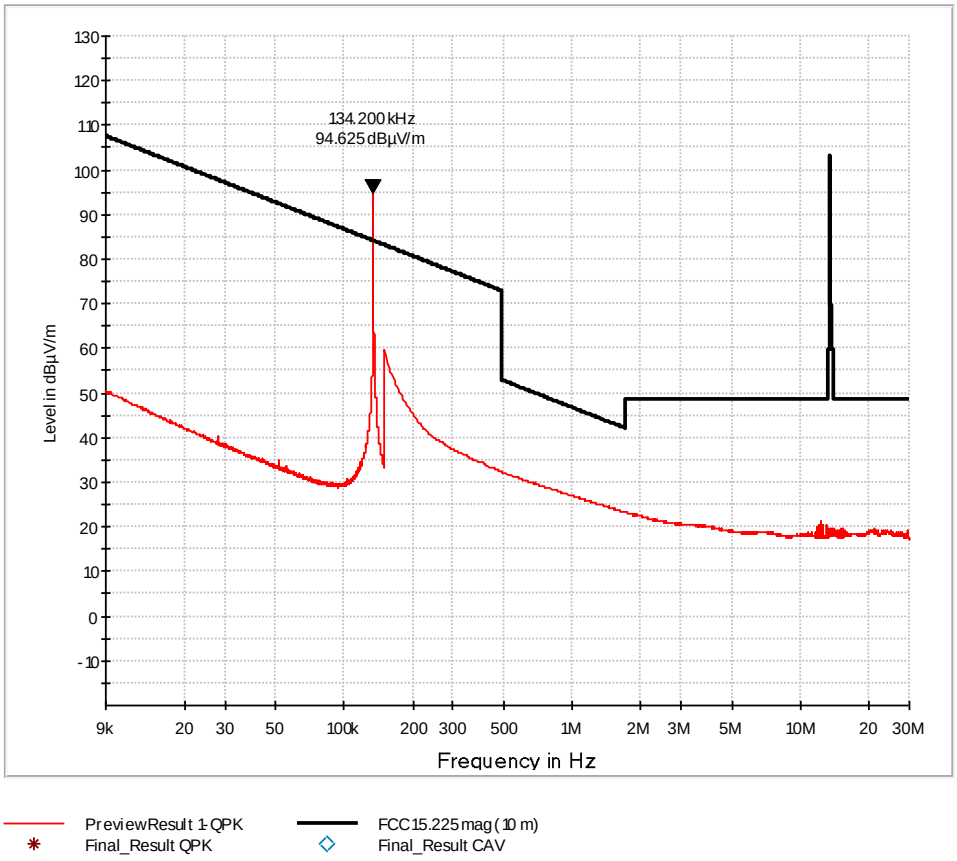
Preview Result 1V-PK+
Preview Result 1H-PK+
FCC Part 15B Class B Electric Field Strength 3m QP
Final_Result QPK

Final Results:

Frequenz MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Messzeit ms*	*Bandbreite kHz*	*Höhe cm*	*Pol*	*Azimut deg*	*Korr. dB/m*
58.500000	37.60	40.00	2.40	1000.0	120.000	110.0	V	195.0	19.3
286.620000	33.09	46.02	12.93	1000.0	120.000	129.0	H	-88.0	20.1
747.210000	39.26	46.02	6.77	1000.0	120.000	106.0	H	-91.0	28.7

Product Service

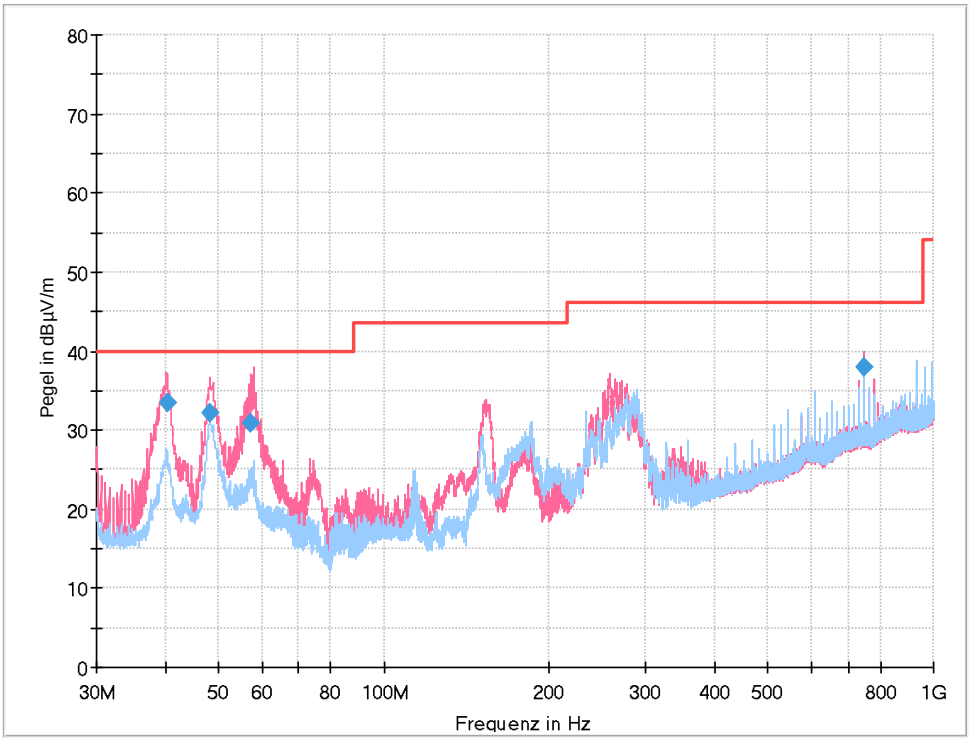
Test Case 6:



Final Results:

Frequency MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Meas. Time ms*	*Bandwidth kHz*	*Pol*	*Azimuth deg*	*Corr. dB/m*
0.134200	94.77	*	*	1000.0	0.200	V	51.0	19.8

*: For field strength calculation at 300m see page 24.



Final Results:

Frequenz MHz	*QuasiPeak dBµV/m*	*Limit dBµV/m*	*Margin dB*	*Messzeit ms*	*Bandbreite kHz*	*Höhe cm*	*Pol*	*Azimut deg*	*Korr. dB/m*
40.290000	33.48	40.00	6.52	1000.0	120.000	101.0	V	-72.0	18.4
48.300000	32.15	40.00	7.85	1000.0	120.000	130.0	V	45.0	19.9
57.420000	30.88	40.00	9.12	1000.0	120.000	115.0	V	121.0	19.5
747.210000	38.03	46.02	7.99	1000.0	120.000	100.0	V	28.0	28.7

Product Service

Field strength calculation at 300m:

Test Case	*Frequency [MHz]*	*Field Strength at 5m [dBµV/m]*	*Field Strength at 10m [dBµV/m]*	*Calculated Correction Factor [dB/dec]*	*Calculated Field Strength at 300m [dBµV/m]*	*Limit [dBµV/m]*	*Margin [dB]*
1	0.1342	116.69	99.37	-57.54	14.38	25	10.62
2	0.1342	115.67	98.09	-58.40	11.83	25	13.17
3	0.1342	123.35	106.27	-56.74	22.46	25	2.54
4	0.1342	128.40	110.37	-59.89	21.90	25	3.10
5	0.1342	90.71	73.66	-56.64	-10.00	25	35.00
6	0.1342	111.01	94.77	-53.95	15.08	25	9.92

Product Service

2.1.8 Test Location and Test Equipment

The test was carried out in semi anechoic chamber no. 3 and 8:

Instrument	*Manufacturer*	*Type No*	*TE No*	*Calibration Period (months)*	*Calibration Due*
EMI test receiver	Rohde & Schwarz	ESR7	61814	12	2024-06-30
Loop antenna	Schwarzbeck	FMZB 1519 B	44334	36	2026-06-30
TRILOG Broadband Antenna	Schwarzbeck	VULB 9162	20116	36	2025-01-31
Semi anechoic room	Frankonia	Cabin no. 3	56331	36	2025-07-31
Semi anechoic room	Albatross	Cabin no. 8	19917	36	2025-07-31

Table 7

Product Service

2.2 Conducted Emissions on Mains Terminals

2.2.1 Specification Reference

ISED RSS-Gen, Clause 8.8

2.2.2 Equipment under Test and Modification State

ARA120; S/N 2128005957; Modification state 0
ASR650; S/N 2128005957; Modification state 0

2.2.3 Date of Test

2024-04-25

2.2.4 Environmental Conditions

Ambient Temperature	23 °C
Relative Humidity	28 %

2.2.5 Specification Limits

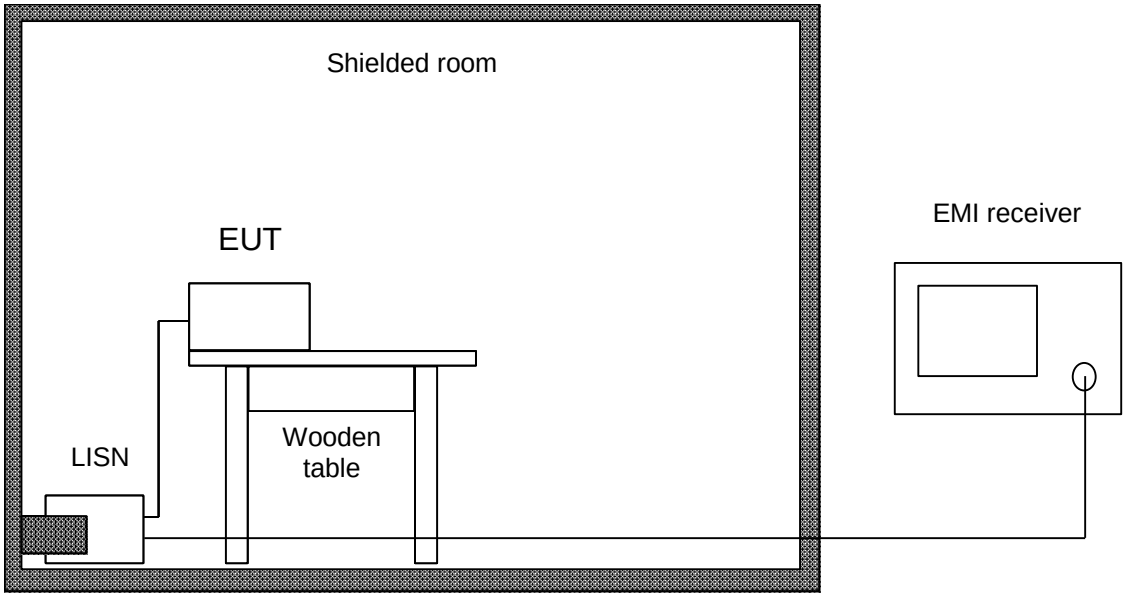
Required Specification Limits			
Line Under Test	*Frequency Range (MHz)*	*Quasi-peak (dBµV)*	*Average (dBµV)*
AC Power Port	0.15 to 0.5	66 to 56*	56 to 46*
	0.5 to 5	56	46
	5 to 30	60	50
Supplementary information: *Decreases with the logarithm of the frequency.			

Table 8 Emission limits

Product Service

2.2.6 Test Method

The test was performed according to ANSI C63.10, section 6.2.

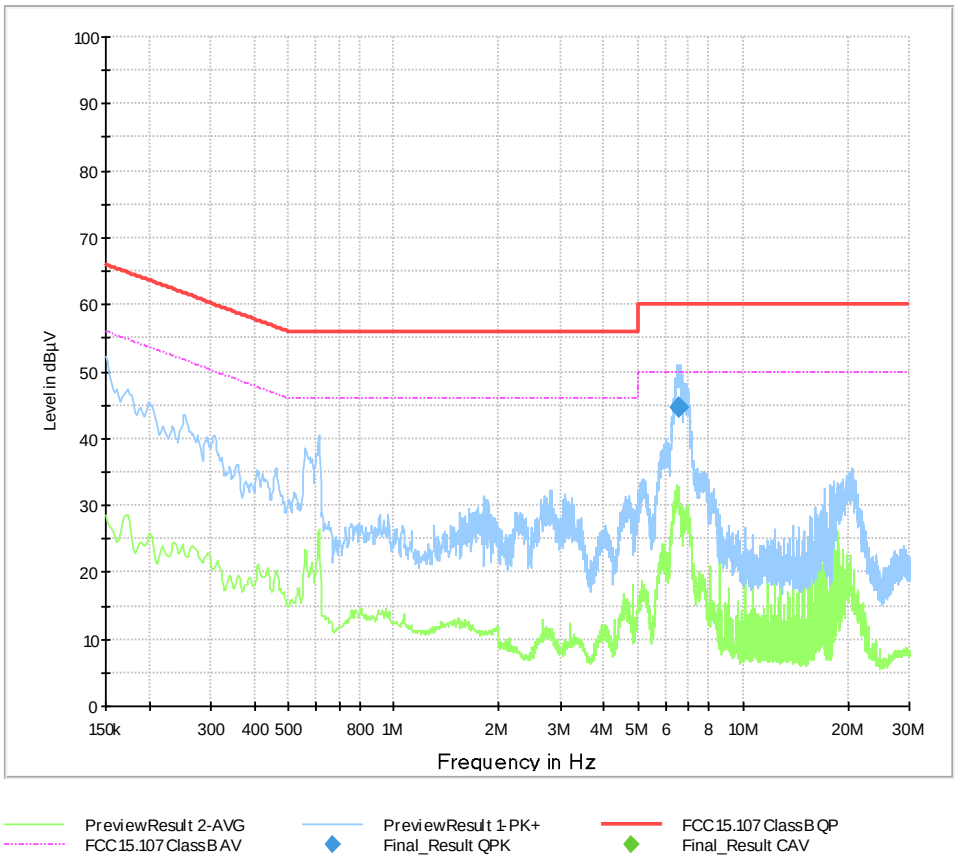


The EUT was placed on a non-conductive table 0.8 m above a reference ground plane and 0.4 m away from a vertical coupling plane.
All power was connected to the EUT through a Line Impedance Stabilization Network (LISN). Conducted disturbance voltage measurements on mains lines were made at the output of the LISN. The LISN was placed 0.8 m from the boundary of the EUT and bounded to the reference ground plane. To simplify testing with quasi-peak and linear average (cispr-average) detector the following procedure is used:
First the whole spectrum of emission caused by the equipment under test (EUT) is recorded with the detectors set to peak and average using CISPR bandwidth of 10 kHz. After that all emission levels having less margin than 10 dB to or exceeding the average limit are retested with the detectors set to quasi-peak and average. If the average limit is kept with quasi-peak levels measurement with average detector is optional. In cases of emission levels between quasi-peak and average limit an additional measurement with average detector has to be performed.

Product Service

2.2.7 Test Results

Phase L1, Test Case 5:

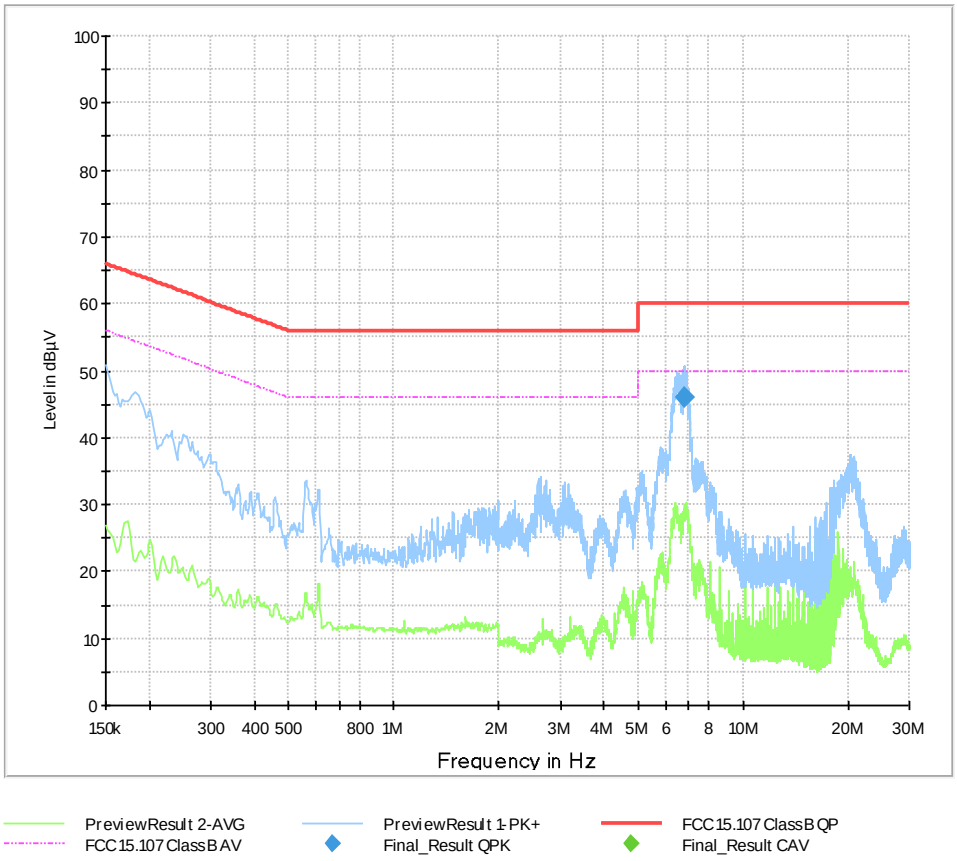


Final Results:

Frequency MHz	*QuasiPeak dBµV*	*CAverage dBµV*	*Limit dBµV*	*Margin dB*	*Meas. Time ms*	*Bandwidth kHz*	*Line*	*Filter*	*Corr. dB*
6.564750	44.68	---	60.00	15.32	1000.0	9.000	L1	ON	10.2

Product Service

Phase N, Test Case 5:



Final Results:

Frequency MHz	*QuasiPeak dBµV*	*CAverage dBµV*	*Limit dBµV*	*Margin dB*	*Meas. Time ms*	*Bandwidth kHz*	*Line*	*Filter*	*Corr. dB*
6.828000	45.90	---	60.00	14.10	1000.0	9.000	N	ON	10.2

Sample calculation:

Final Value (dBµV) = Reading Value (dBµV) + (Cable attenuation (dB) + LISN Transducer (dB))

Product Service

2.2.8 Test Location and Test Equipment

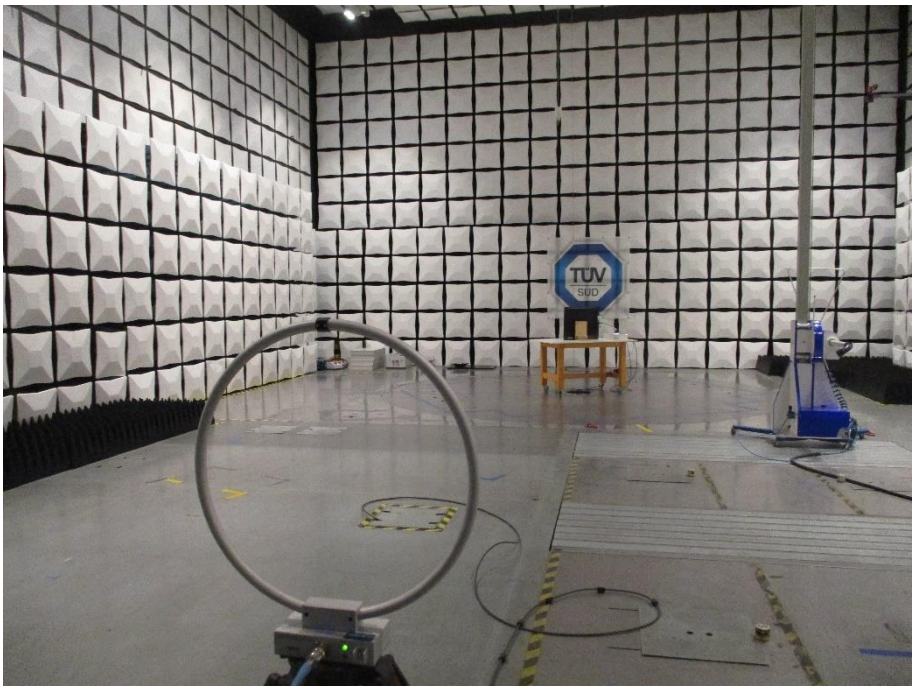
The test was carried out in shielded room no. 1:

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Impedance stabilization network ISN	Teseq GmbH	ISN ST08	37435	36	2024-06-30
Shielded room	Albatross	Cabin no. 1	19311	---	---
EMI test receiver	Rohde & Schwarz	ESU8	19904	12	2024-04-30

Table 9

Product Service

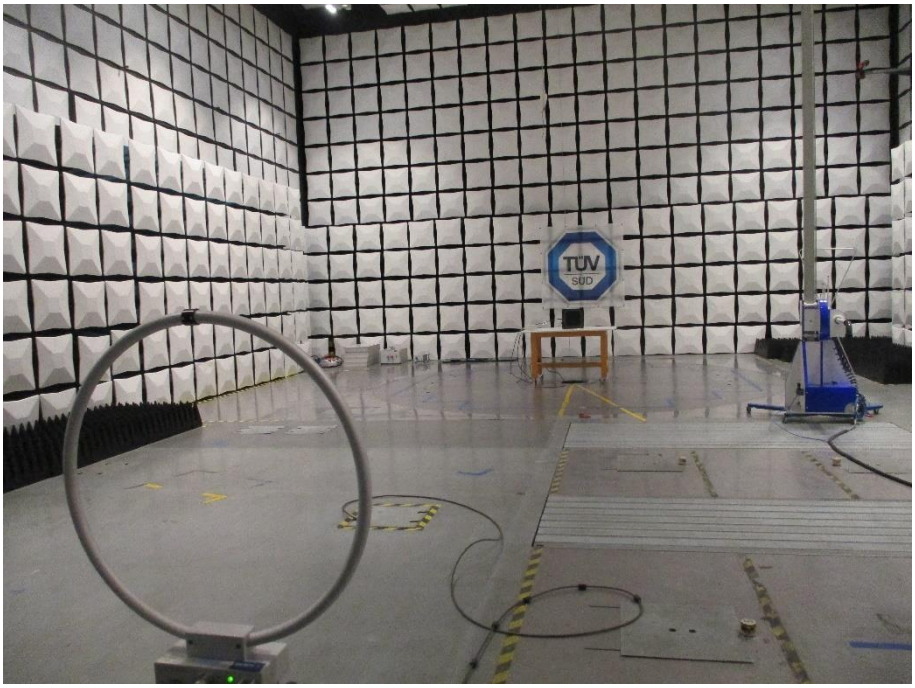
3 Photographs of Test Setups



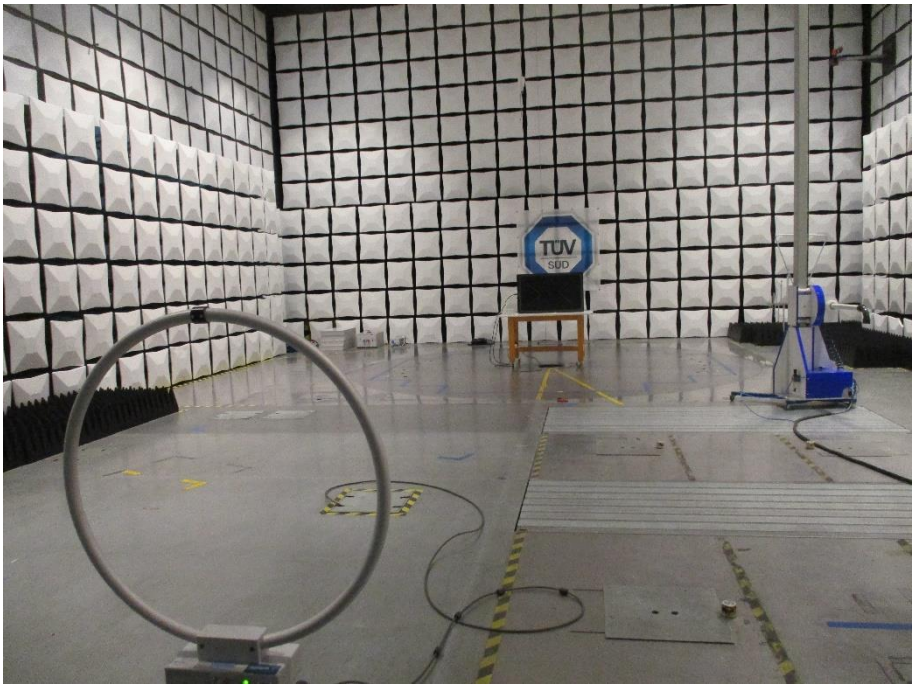
APA206

LGA149

Product Service

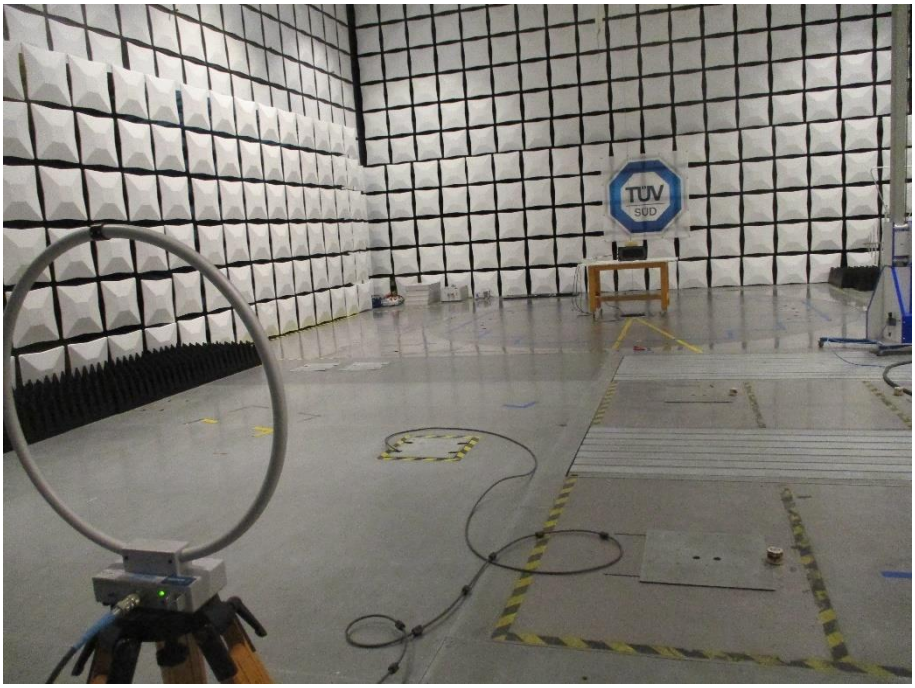


APA204



APA160

Product Service



APA203

ARA120

Product Service

4 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Radio Interference Emission Testing		
Test Name	*kp*	*Expanded Uncertainty*
Conducted Voltage Emission		
9 kHz to 150 kHz (50Ω/50µH AMN)	2	± 3.8 dB
150 kHz to 30 MHz (50Ω/50µH AMN)	2	± 3.4 dB
100 kHz to 200 MHz (50Ω/5µH AMN)	2	± 3.6 dB
Discontinuous Conducted Emission		
9 kHz to 150 kHz (50Ω/50µH AMN)	2	± 3.8 dB
150 kHz to 30 MHz (50Ω/50µH AMN)	2	± 3.4 dB
Conducted Current Emission		
9 kHz to 200 MHz	2	± 3.5 dB
Magnetic Fieldstrength		
9 kHz to 30 MHz (with loop antenna)	2	± 3.9 dB
9 kHz to 30 MHz (large-loop antenna 2 m)	2	± 3.5 dB
Radiated Emission		
30 MHz to 300 MHz	2	± 4.9 dB
300 MHz to 1 GHz	2	± 5.0 dB
1 GHz to 6 GHz	2	± 4.6 dB
Test distance 10 m		
30 MHz to 300 MHz	2	± 4.9 dB
300 MHz to 1 GHz	2	± 4.9 dB
The expanded uncertainty reported according to to CISPR16-4-2: 2011 + A1 + A2 + Cor1 is based on a standard uncertainty multiplied by a coverage factor of kp = 2, providing a level of confidence of p = 95.45%		

Table 10 Measurement uncertainty based on CISPR 16-4-2

Product Service

Radio Interference Emission Testing		
Test Name	*kp*	*Expanded Uncertainty*
Occupied Bandwdith	2	± 5 %
Conducted Power		
9 kHz ≤ f < 30 MHz	2	± 1.0 dB
30 MHz ≤ f < 1 GHz	2	± 1.5 dB
1 GHz ≤ f ≤ 40 GHz	2	± 2.5 dB
1 MS/s power sensor (TS8997)	2	± 1.5 dB
Occupied Bandwidth	2	± 5 %
Power Spectral Density	2	± 3.0 dB
Radiated Power		
25 MHz – 6 GHz	1.96	±4.4 dB
1 GHz – 18 GHz	1.96	±4.7 dB
18 GHz – 40 GHz	1.96	±4.9 dB
40 GHz – 325 GHz	1.96	±6.1 dB
Conducted Spurious Emissions	2	± 3.0 dB
Radiated Spurious Emissions	2	± 6.0 dB
Voltage		
DC	2	± 1.0 %
AC	2	± 2.0 %
Time (automatic)	2	± 5 %
Frequency	2	± 10^{-7}
The expanded uncertainty reported according to to ETSI TR 100 028:2001 is based on a standard uncertainty multiplied by a coverage factor of kp = 2, providing a level of confidence of p = 95.45%		

Table 11 Measurement uncertainty based on ETSI TR 100 028

The measurement uncertainty in the laboratory is less than or equal to the maximum measurement uncertainty according to CISPR16-4-2: 2011 + A1 + A2 + Cor1 (U_{CISPR}) and as specified in the test report below. This normative regulation means that the measured value is also the value to be assessed in relation to the limit value.

Test Name	*Expanded Uncertainty*
Occupied Bandwidth	±5 %
Conducted Power	
9 kHz ≤ f < 30 MHz	±1.0 dB
30 MHz ≤ f < 1 GHz	±1.5 dB
1 GHz ≤ f ≤ 40 GHz	±2.5 dB
1 MS/s power sensor (2.4 / 5 GHz band)	±1.5 dB
Power Spectral Density	±3.0 dB
Radiated Power	
25 MHz – 26.5 GHz	±6.0 dB
26.5 GHz – 66 GHz	±8.0 dB
40 GHz – 325 GHz	±10.0 dB
Conducted Spurious Emissions	±3.0 dB
Radiated Field Strength 9 kHz – 40 GHz	±6.0 dB
Voltage	
DC	± 1.0 %
AC	± 2.0 %
Time (automatic)	± 5 %
Frequency	± 10^{-7}

Table 12 Decision Rule: Maximum allowed measurement uncertainty